

Reconfigurable RF filters, Phase I

Completed Technology Project (2009 - 2009)



Project Introduction

Space Micro proposes to build upon our existing space microelectronics and hardening technologies and products, to research and develop a novel rad hard/tolerant RF filter device, which is capable of long life in space. This will leverage emerging commercial semiconductor technology used in an innovative configuration to meet NASA's expanding communications needs. At the end of Phase 1 we will have demonstrated, both by analysis and limited lab testing of a prototype device, the technical feasibility.(TRL=3). In Phase 2 we will develop an engineering models of this RF device, and demonstrate electrically and also in relevant ground-based radiation simulators (Proton, heavy ion)- TRL=5-6 at end of Phase 2, and ready to launch as a standard Space Micro space IC product.

Anticipated Benefits

Potential NASA Commercial Applications: This technology may benefit commercial space platforms, both LEO and GEO telecommunication satellites, such as Intelsat, Direct TV, XM radio, Lockheed's A2100, and Boeing's HS-601. Civil earth sensing applications such as weather/metrology applications e.g. (NOAA) can also benefit. This technology and products will also address emerging MDA RF communications subsystems with radiation threats. These programs include MKV THAAD, AEGIS, and GMD for Blocks 2012 and beyond. With the new challenge of atmospheric neutrons to MDA High altitude airship (HAA) programs and NASA or Air Force UAV programs, this R&D will be a timely solution. Other military applications may include strategic missiles (Trident and AF upgrades), as well as many DoD tactical weapon programs with nuclear survival levels.



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Table of Contents

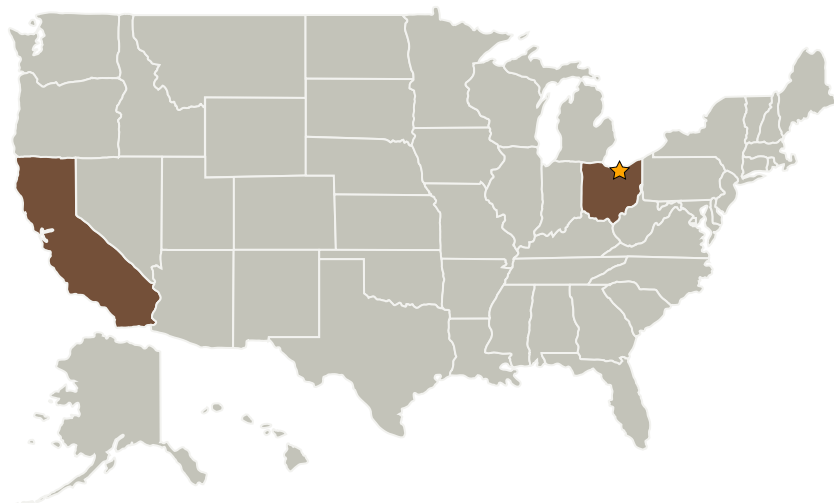
Project Introduction	1
Anticipated Benefits	1
Primary U.S. Work Locations and Key Partners	2
Project Transitions	2
Organizational Responsibility	2
Project Management	2
Technology Maturity (TRL)	3
Technology Areas	3

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Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
★ Glenn Research Center(GRC)	Lead Organization	NASA Center	Cleveland, Ohio
Space Micro, Inc.	Supporting Organization	Industry	San Diego, California

Primary U.S. Work Locations

California	Ohio
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Project Transitions

 **January 2009:** Project Start

 **July 2009:** Closed out

Closeout Summary: Reconfigurable RF filters, Phase I Project Image

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Glenn Research Center (GRC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Project Manager:

Maximilian C Scardelletti

Principal Investigators:

Dave J Strobel
David Strobel

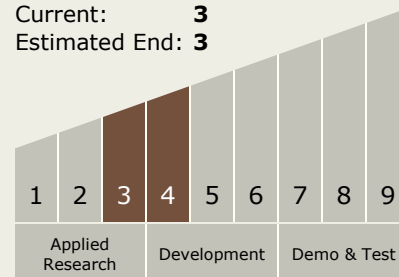
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Technology Maturity (TRL)

Start: **4**
Current: **3**
Estimated End: **3**



Technology Areas

Primary:

- TX02 Flight Computing and Avionics
 - └ TX02.3 Avionics Tools, Models, and Analysis
 - └ TX02.3.2 Space Radiation Analysis and Modeling